1953 BMW R25/3 Motorcycle Owners Manual

BMW R25/3 Motorcycle Web Page

The pages below are scanned from the October 1953 BMW R25/3 owners manual.
There 88 pages in the original, which I will add as time permits. Right now 40% of the most important pages are below.




Manual

BMW
Motorcycle
R 25/3

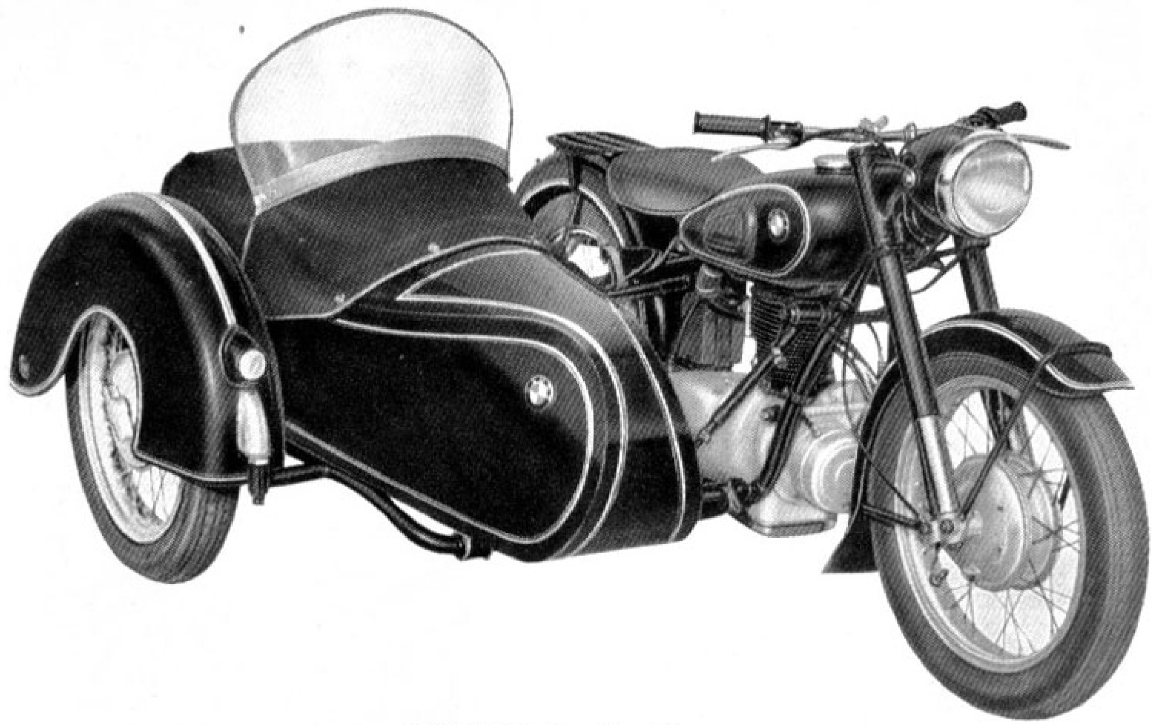
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View from right hand side



View from left hand side



BMW R 25/3 with side car

Though you may be a very experienced rider and we are supplying you a first-class motorcyle, it will be in your own interest to read your handbook carefully before riding the new machine. You will soon realize that it contains numerous worth while details to enrichen your motorcycle knowledge, and many valuable pointers to prevent you from troubles which might occur as a result of maintenance faults or omissions.

You may rest assured that the minor effort of reading this book and observing the rules laid down therein will be repaid with reliability and long service life and you will thus enjoy an undisturbed pride of ownership.

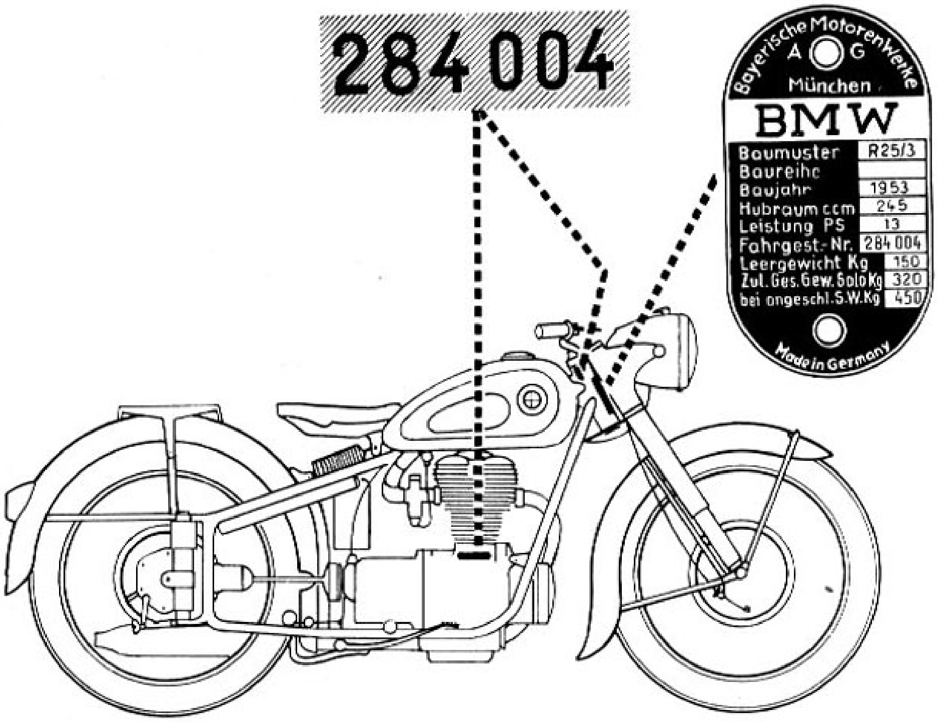
This manual is written in easily understandable language and its contents have been limited to the most useful chapters as required for a rider's handbook. Should you desire any information or advice which cannot be gained from the following pages, please do not hesitate to contact your BMW distributor.

Now, we wish you the best of luck and very happy riding with your BMW motorcycle.

Munich, October 1953

BAYERISCHE MOTOREN WERKE
Aktiengesellschaft

Where are the frame and engine numbers?



Technical Data

Engine:

type of engine	four stroke, with overhead valves
rated continous power	13 HP, 5,800 r. p. m.
number of cylinders	1
cylinder arrangement	vertical
bore	68 mm
stroke	68 mm
piston displacement	245 c. c.
compression ratio	7 : 1

valve timing measured at 2 mm = .08" valve clearance:

intake valve opens after top dead centre	6°
intake valve closes after bottom dead centre	34°
exhaust valve opens before bottom dead centre	34°
exhaust valve closes before top dead centre	6°

operating valve clearance on a cold engine:

intake	0.10 – 0.15 mm = .004" – .006"
exhaust	0.15 – 0.20 mm = .006" – .008"
engine lubricating system:	Force feed lubrication, oil stored in lower part of engine housing

Carburettor:

type	throttle slide carburettor with needle jet and air filter mounted in petrol tank		
model	**Bing 1/24/41**	or	**SAWE K 24 F**
passage	24 mm = .95"		24 mm = .95"
main jet	145		150
idling jet	35		35
needle jet	1208		702
jet needle	1473		054
needle adjustment	2		1
air correction jet pilot			1.5
air screw opened	1 – 2 turns		1.5 – 2 turns
weight of float	11 g = .375 oz.		8 g = .28 oz.

Ignition and lighting system:

dynamo (generator)	Noris ZLZ 60/6/1600 L
type of ignition	battery-ignition with automatic timing on dynamo
contact breaker gap	0.4 mm = .016"
maximum spark retard	7° before T.D.C. (adjusting value with the governor weights in stationary position)
maximum spark advance	42 + 2° before T. D. C.
sparking plug	Bosch W 240 T 1 Electrode gap. 0.6 mm = .024"
battery	6 V, 7 Ah capacity

lighting system	"Bilux" lamp 6 V, 35/35 W with electric dip switch parking light 6 V, 1.5 W ignition warning light 6 V, 1.5 W; neutral light 6 V, 1.5 W speedometer light 6 V, 0.6 or 1.2 W tubular lamps: tail light 6 V, 5 W; stop light 6 V, 10 W
electric horn	Noris H E 6

Drive:

clutch	single-disc dry clutch
gear box	four-speed type with sliding dog clutches, housing bolted to engine. Shock absorption by resilient drive shaft.
shifting mechanism	ratchet-type foot-operated gear-change mechanism
speed reduction	
1st gear	6.1 : 1
2nd gear	3.0 : 1
3rd gear	2.04 : 1
4th gear	1.54 : 1
Power transmission from gears to rear wheel	propeller shaft drive with elastic coupling and fully enclosed spiral bevel gears
speed reduction between gear box and rear wheel:	
solo driving	4.16 : 1 = number of teeth 25/6
side car driving	4.8 : 1 = number of teeth 24/5

Chassis:

Frame	double tube steel frame
front suspension	dust and splash-proof BMW telescope fork with double-acting oil damping
rear suspension	dust and splash-proof BMW telescope suspension
Brakes:	front- and rear-wheel internal shoe brake
brake drum diameter	160 mm = 6.3"
width of brake lining	35 mm = 1.38"
braking area	176 cm² = 27.3 sq. in.
Rims	light-alloy drop-centre rims 3 x 18
Tires	3.25 x 18

Dimensions:

overall width solo	760 mm = 30"
with BMW side car	1560 mm = 61.4"
overall length solo	2065 mm = 81.5"
with BMW side car	2220 mm = 87.5"
overall height	960 mm = 37.8"
wheel base	1365 mm = 53.6"
track BMW team	1043 mm = 41"
height from saddle to ground	730 mm = 28.7"
ground clearance	105 mm = 4.1"

Weights:	**Solo**	**with side car**
net weight ready for operation[1])	150 kg = 330 lbs.	220 kg = 484 lbs.
permissible load	170 kg = 374 lbs.	230 kg = 506 lbs.
permissible total weight[2])	320 kg = 704 lbs.	450 kg = 990 lbs.
maximum occupation including driver	2 persons	3 persons

Permissible maximum speeds of run-in motorcycles in m. p. h.: depends on the octane rating of the fuel consumed and the resistance of the air encountered due to size, position and clothing of the rider. (See "Running-in the Motorcycle", page 28, for maximum speeds.)

	1st gear	2nd gear	3rd gear	4th gear
solo sitting	15	31	46	67
solo crouched	—	—	—	74
with side car	12	25	38	55

Fuel and lubricants:

fuel	normal filling station petrol or super fuel
lubricants	see Lubrication Chart
capacity of petrol tank	12 litres = 3.15 U. S. gall. = 2.65 Imp. gall.
reserve fuel	1.5 litres = 3.0 U. S. pints = 2.6 Imp. pints (sufficient for approx. 25 miles)

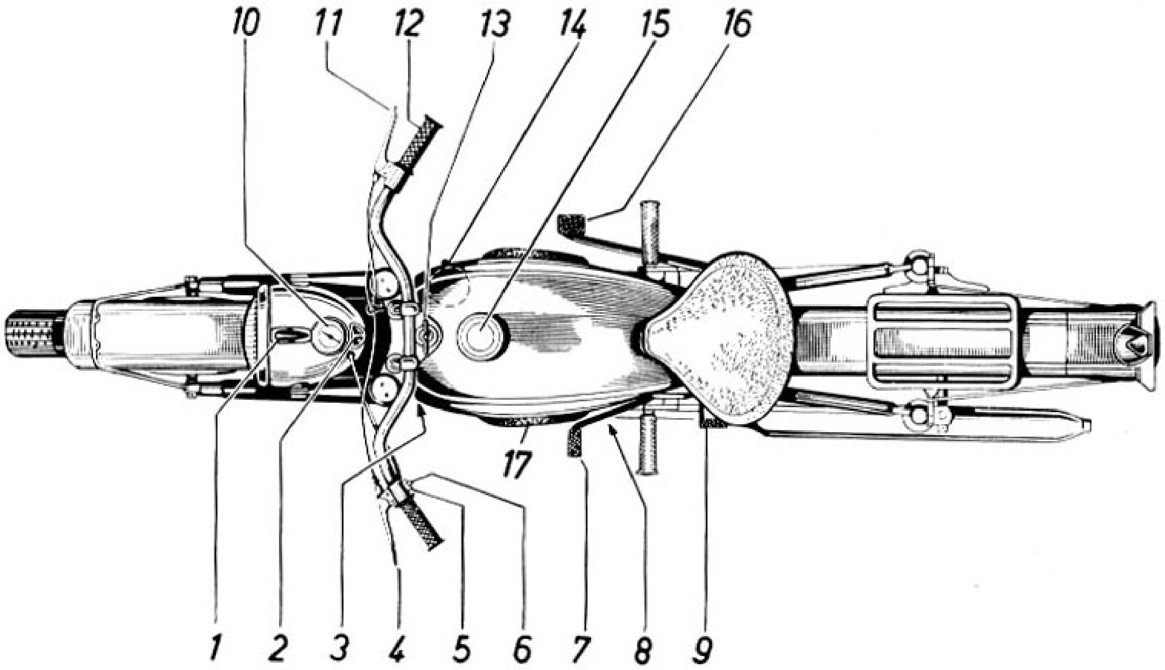
[1]) net weight = wt. of motorcycle ready for operation, including lubrication, fuel, tools.
[2]) permissible total weight = net weight + persons + baggage load.

engine oil capacity	1.25 litres = 2.6 U. S. pints = 2.2 Imp. pints
gear box oil capacity	0.65 litres = 1.3 U. S. pints = 1.1 Imp. pints
rear wheel drive oil capacity	125 c. c. = 0.25 U. S. pints = 0.22 Imp. pints
front fork oil capacity	130 c. c. per fork leg = 0.27 U. S. pints = 0.23 Imp. pints
Fuel consumption	depending on speed (see fuel consumption page 83)
standard consumption at $^2/_3$ maximum speed + 10 %)	
solo riding	81 miles per U. S. gall. = 97 miles per Imp. gall. } at 45 miles p. h.
side car riding	62 miles per U. S. gall. = 74 miles per Imp. gall. } at 36 miles p. h.
Oil consumption	approx. 0.7 litres per 600 miles

Operation and Control

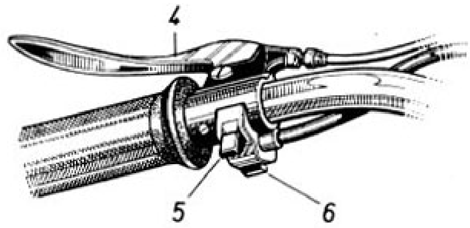
1. **Ignition and lighting switch** on the head lamp:
   a) **Ignition key in centre position** closes the ignition circuit. If battery is charged, the red pilot lamp lights up.
   Engine can be started when green light showing neutral position is burning. The electric horn and the stop lamp are ready to operate.
   b) **Ignition key turned to the right** switches on the Bilux lamp with dipper switch, the tail light with license plate illumination and the speedometer light.
   c) **Ignition key turned to the left** switches on the city light (parking light, and tail light with license plate illumination).
   d) **Ignition key turned to the left** and withdrawn switches on parking lights (parking light and tail light). Simultaneously ignition, ignition warning light, neutral indicator, speedometer light and horn are cut out.
   e) **Ignition key turned to the centre position** and withdrawn short circuits the ignition and switches off the battery.

   Advance and retard spark are controlled automatically by a regulator on the armature of the magneto.
2. **Warning lights on headlamp:**
   Ignition warning light at the left glows red when battery is supplying current. At higher speed red pilot lamp goes out. This shows that battery is being charged.
   Neutral indicator: Pilot lamp at the right glows green when gears are in neutral.
3. **Steering lock** on left-hand side of frame head. Press lock into the lock tube; with the handlebar turned to its extreme right position, rotate key clockwise and withdraw.



Operation and Controls

4. **Clutch lever** on left handlebar grip:
By actuating clutch, engine is disengaged from the transmission.



left handlebar grip

5. **Dip switch** on left handlebar grip: In top position normal driving light is switched on; on bottom position the dipped beam filament of Bilux lamp is switched on.

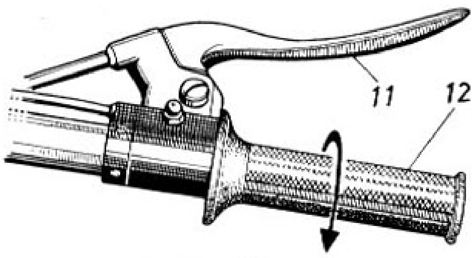
6. **Horn button** on dip switch:
Actuating this button cuts in electric circuit for horn.

7. **Gear shift pedal** on left-hand side of gearbox:
Depressing pedal shifts to next slower gear, raising pedal shifts to next faster gear or to neutral. Pedal automatically returns to its starting position after each operation. Neutral position is between 1st and 2nd gear.

8. **Petrol tap** located under left-hand side of tank:
Lever positions: Low = "Z" (closed), rear = "A" (open),
front = "R" (reserve).

9. **Kickstarter** on left-hand side of gearbox:
Only operate kickstarter with gears in neutral. For cranking engine switch off ignition; cut in ignition to start engine.

10. **Speedometer:**
Needle in dial records the motorcycle speed im miles per hour and integrator shows total mileage. Coloured markings I, II, III on dial show maximum permissible speed for first, second and third gear of a run-in motorcycle.



right handlebar grip

11. **Handbrake lever** on right handlebar grip actuates front wheel brake.

12. **Throttle control twist grip** on right handlebar: turning clockwise closes, turning anticlockwise opens throttle in carburettor.

13. **Steering damper mechanism** on top of fork:
On bad roads, for high speed, and side car driving, tighten damper screw slightly and loosen for slow solo riding.

14. **Air strangler** on filter under petrol tank:
During normal running, the air lever should always be kept fully open (rear position). Only when starting from cold and at temperatures below 30° F. the lever is closed (front position).

15. **Petrol filler:**
Capacity of fuel tank 12 litres = approx. 3.15 U. S. gallons = 2.65 Imp. gallons (of which 3.0 U. S. pints = 2.6 Imp. pints constitute reserve fuel sufficient for about 25 miles).

16. **Brake pedal** on right side of frame:
Actuates rear brake when depressed.

17. **Tool box,** in petrol tank, lockable, in recess behind the left-hand knee pad.

Operating Instructions

Before Starting:

Fill fuel tank	filling station or super fuel. Tank capacity 12 litres = 3.15 U. S. gallons = 2.65 Imp. gallons with reserve fuel supply of 3.0 U. S. pints sufficient for 25 miles.
Check oil in engine	as summer lubricating oil use SAE 40 as winter lubricating oil use SAE 20 (only use service-tested lubricants recommended by BMW agents). Oil should reach to top mark on dip stick. To measure, only insert stick, do not screw it on. Never fill in too much oil.
Check oil in gear box	fill in oil up to lower threads of level plug hole, same as in engine.
Check oil in rear wheel drive	use gear oil type SAE 90 (only use recommended lubricants), fill up to lower threads of level plug hole.

Check tire pressures:	front wheel	rear wheel	side car wheel
rider alone	21 psi	23 psi	—
rider and pillion passenger	21 psi	28 psi	—
rider with occupied side car	24 psi	28 psi	24 psi
rider with pillion passenger and occupied side car	24 psi	38 psi	24 psi

Starting engine:

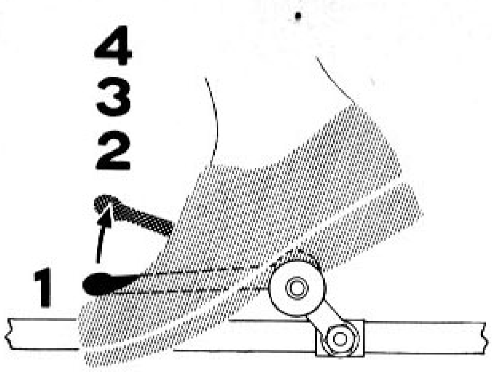
open petrol tap	turn tap to "A" (open).
give gas: for cold engine	open twist grip slightly, tickle carburettor. Close air strangler on filter if outside temperature is below 30° F.
for warm engine	open throttle slightly. Do not tickle carburettor. Do not close air strangler on filter.
turn over the engine	with ignition cut out and gears shifted to neutral (red and green lamps are out) by actuating kick-starter twice.
start engine	cut in ignition (red and green lamps light up). Give kickstarter a short, powerful kick. When engine starts, reopen air strangler again fully.
allow engine to warm up	at medium speed, never race your engine (if engine is cold, warm up for at least two minutes). This is of great importance as it prevents cylinder from undue wear and tear.

Riding:

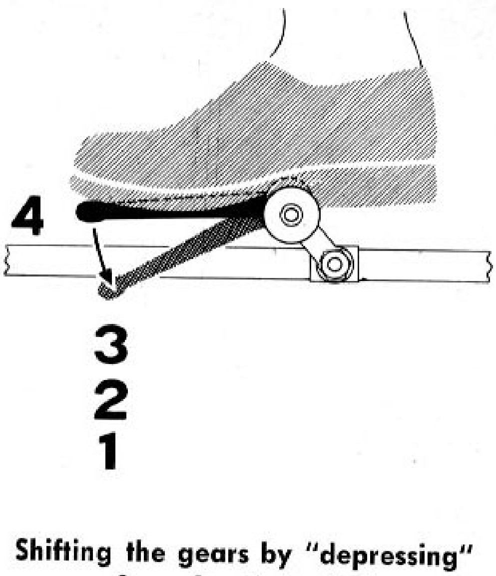
Disengage clutch	pull back lever on left handlebar towards grip.
Shift to first gear	press gear change pedal downwards (green light goes out).
Engage clutch	when the gear is engaged, open throttle slightly and gently release the clutch lever.

Shifting from first over neutral to 2nd, 3rd and top gear	always disengage clutch before shifting and ease throttle back. Draw gear change pedal upwards, then engage clutch and reopen throttle as required.
Shifting from top to 3rd and second gear and over neutral to first	always disengage clutch before shifting, leaving throttle a bit open, press gear change pedal downwards, then engage clutch and open throttle as required.
Speed	never exceed maximum speeds listed on page 28.
Riding downhill	shift to next lower gear and, if necessary, shift once more. A good rule: In general, ride up and downhill in the same gear.
Stopping	close throttle. When speed has slowed down sufficiently, declutch and apply brake slowly. Set gear control in neutral position with shifting pedal.
Turning off engine	cut out ignition. Never have ignition turned on for any length of time if engine is standing still. Shut petrol tap (turn to "Z" = closed). This is important.

Avoid unnecessary noise while riding. Thus you will enhance your personal prestige and that of the motorcycling sports world. We have really done a lot in providing a very intense silencing of the exhaust noise. Now, please do the rest and abstain from applying sudden throttle outbursts and driving at maximum speed whenever this would disturb the road using public. These circumstances apart, however, you may and are expected to make full use of the whole speed range, for the benefit of engine and transmission working components.



Shifting the gears by "lifting"
from first to fourth
by one gear at a time



Shifting the gears by "depressing"
from fourth to first
by one gear at a time

Go into neutral from 3rd and 4th gear by depressing pedal several times to 1st gear and a short lift into neutral.

Running the Engine in Properly

is of vital importance for the useful life and the reliable operation of your motorcycle because even those parts which have been subjected to most accurate machining and lapping must still attain the ultimate smoothness which only running-in can give. For the benefit of your engine, take great care that the below listed maximum permissible speeds are never exceeded during the running-in period up to 600 miles and from 600 to 1,200 miles. This is not to be construed to mean that the engine must run at the maximum speed at all times, on the contrary, the engine, gearing and rear wheel drive are best run in under varying speed and load with much gear shifting as is required on hilly roads with many curves. On level roads drive at maximum speed for no more than 500 yards and then let the motorcycle coast. In this manner all sliding and revolving parts will be properly run-in.

Never race your engine with the gears in neutral. Shift gears at the proper moment when riding uphill, to avoid overloading the engine. Shift to next lower gear before speed drops off too much, because driving over longer distances in the lower gears does not harm the engine or the gearing.

Do not drive full speed over long stretches as soon as your motorcycle reaches the 1,200 mile limit. We recommend a gradual increase of speed until 1,800 miles have been travelled.

Maximum speeds in the individual gears
must not be exceeded.

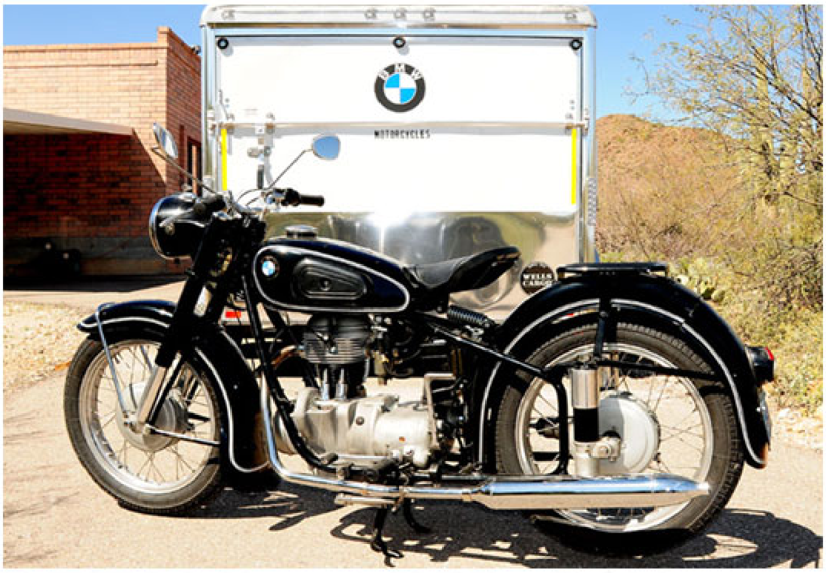
Motorcycle type R 25/3

miles registered on speedometer	rear wheel transmission for	miles per hour in			
		1st gear	2nd gear	3rd gear	4th gear
0 to 600	solo riding	9	18	28	37
	side car riding	6	15	25	31
600 to 1,200	solo riding	12	25	37	50
	side car riding	9	22	34	43
over 1,200	**solo riding sitting**	**15**	**31**	**46**	**67**
	solo riding crouched low	**—**	**—**	**—**	**74**
	side car riding	**12**	**25**	**37**	**54**

Attention!

The carburettor is not sealed to enable better running-in conditions. For this reason it is of great importance to run in the motorcycle in accordance with above instructions. You must get the feel of it.

Unauthorized tampering with the speedometer seal invalidates all guarantee claims.



More pages from 30 to 79 will be added in increments later.

Lubrication Chart for BMW R 25/3

Servicing items (The numberals correspond to the lubrication points in the illustrations).	Miles 300	600	1200	2000	3000	4000	5000	6000	7000	thereafter every miles
(1) Change oil in engine — quantity required 1.25 litres = 2.6 U.S. pints = 2.2 Imp. pints. Oil level should reach to top mark on dip stick (1 measuring mark = ½ Imp. pint)	x	x	x	x	x	x	x	x	x	1000
(2) Check oil level in gear box and top up to lower threads of level plug hole	x		x	x	x	x	x		x	1000
[3] Change oil in gear box, filling quantity about 0.65 litres = 1.3 U.S. pints = 1.1 Imp. pints		x						x		6000
Grease rear suspensions, right and left		x		x		x		x		1000
[4] Clean hubs of disassembled wheels and fill with new grease								x		6000
△5 Check oil level in bevel drive case and top up to the lower threads of level plug hole	x		x	x	x	x	x		x	1000
Change oil in bevel drive case		x						x		6000
(6) After repairing refill 130 c. c. = .27 U.S. pints = .23 Imp. pints of engine oil in each prong of front forks								x		6000
(7) Oil all joints of braking mechanism	x	x	x	x	x	x	x	x	x	1000
[8] Grease universal joint of propeller shaft		x	x	x	x	x	x	x	x	1000
(9) Oil clutch operating lever on gear box		x	x	x	x	x	x	x	x	1000
[10] Grease twist grip on handlebar		x	x	x	x	x	x	x	x	1000
[11] Grease brake pedal		x	x	x	x	x	x	x	x	1000

Remarks

Legend of the symbols on the left margin:

○ **Engine oil*)**

Engine, gear box:
summer SAE 40
winter SAE 20

Front forks:
summer SAE 20
winter SAE 10

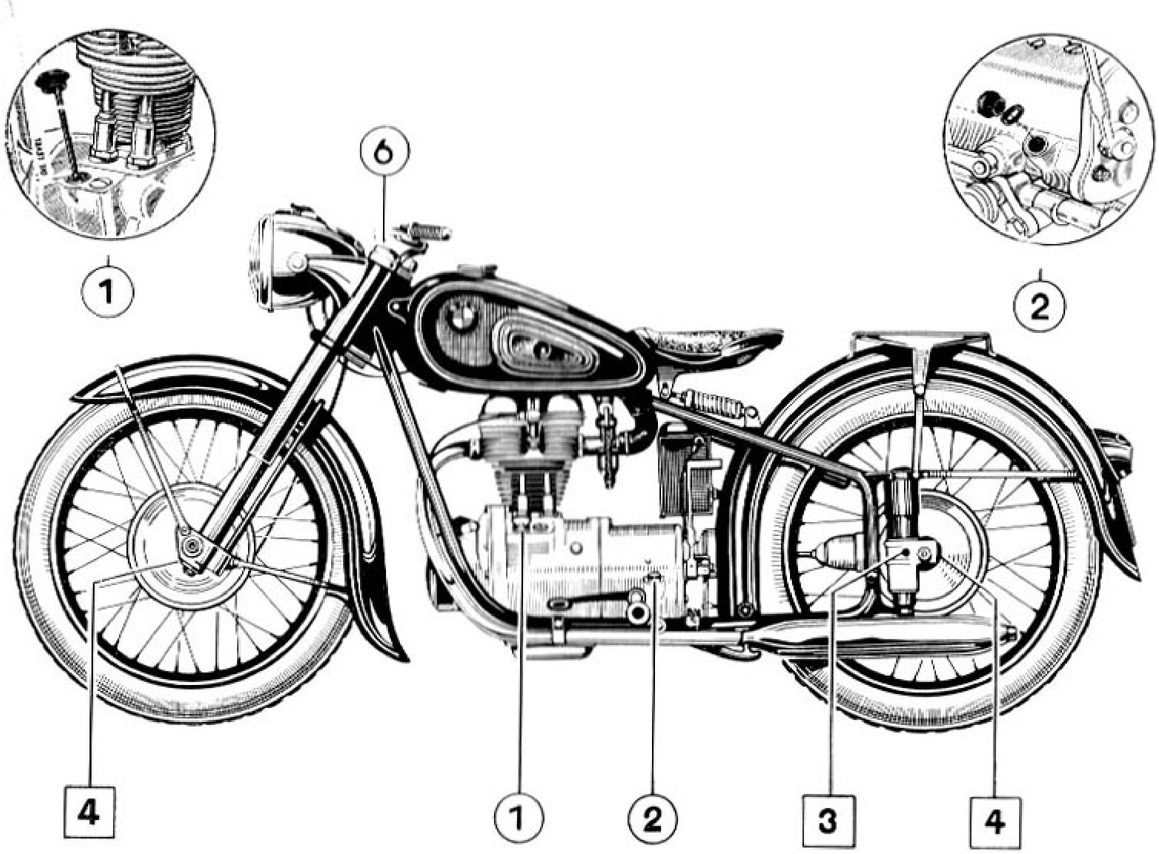
△ **Rear wheel drive lubricating oil*) SAE 90**

□ **Lubricating grease*)**

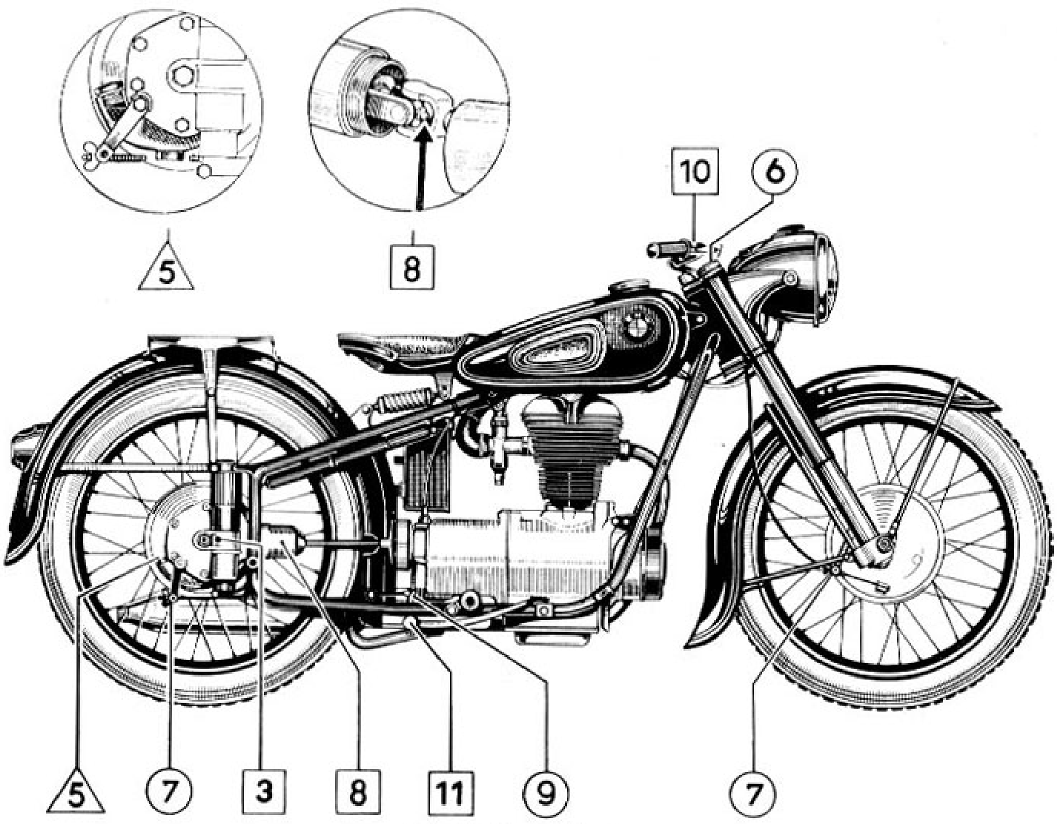
Wheel hub grease with a melting point of about 350° F; if not available use normal lubricating grease.

***) Only use service-proven lubricants;**

Our BMW agents will gladly recommend job-tested lubricants



Lubrication Chart
for left side of motorcycle

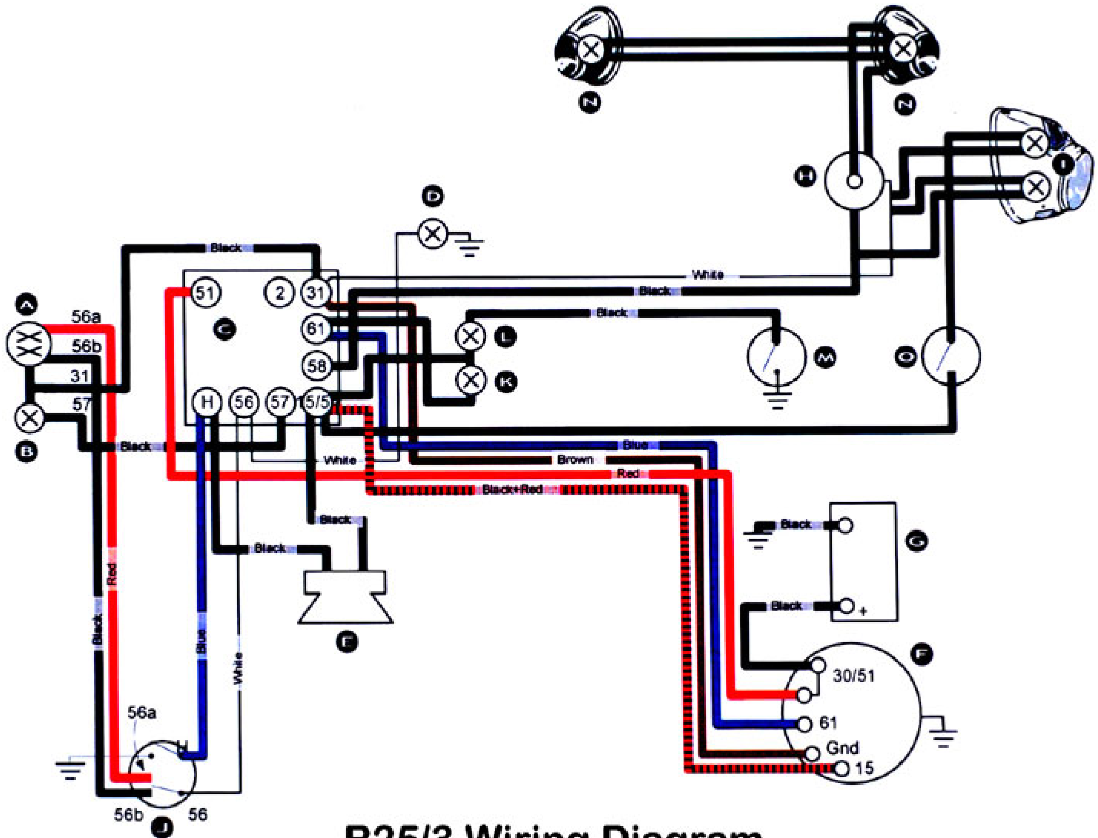


Lubrication Chart
for right side of motorcycle

Fuel Consumption

Speed in Miles per hour	Miles per Imp. gallon approx.	
	R 25/3 Solo	R 25/3 with Side Car
25	157	128
30	149	109
35	142	91
40	123	74
50	99	51

Speed in Miles per hour	Miles per U. S. gallon approx.	
	R 25/3 Solo	R 25/3 with Side Car
25	131	107
30	124	90
35	118	76
40	102	62
50	82	42



R25/3 Wiring Diagram

From Doug Rinckes' *BMW /2 Electrics*

A	Headlight	B	Parking light
C	Ignition switch	D	Speedometer light
E	Horn	F	Generator, regulator, ignition points, coil
G	Battery	H	Power socket
I	Brake and tail light	J	Highbeam and horn switches
K	Charge light	L	Neutral light
M	Neutral switch	N	Sidecar lights
O	Brake switch		